

NOTES ON *PALUDESTRINA JENKINSI* (SMITH) AND *P. CONFUSA*  
(FRAUENF.).

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*PALUDESTRINA JENKINSI* (Smith).

*Paludestrina Jenkinsi* (Smith) was first described, as *Hydrobia Jenkinsi*, by Mr. E. A. Smith in 1889,<sup>1</sup> from examples taken at Plumstead by Mr. A. J. Jenkins. Previous to this, however, three examples had been presented to the British Museum (Natural History) by Mr. Walter Crouch, who had obtained them at Beckton. Preceding Mr. Smith's description was a note on the same form by Mr. J. T. Marshall,<sup>2</sup> who considered it a variety of *P. ventrosa* (Mont.), and named it var. *carinata*. Mr. Jenkins informs us that he first noticed it in 1883 at East Greenwich. It is worthy of note that Mr. G. Sherriff Tye had examples, sent to him in 1886 by the late Miss E. R. Fairbrass, that had been taken between Deal and Sandwich, probably from the same locality where Mr. L. E. Adams obtained his specimens in 1891.<sup>3</sup> Since the species was described it has been found in England at Topsham, Lewes, Hythe, Short Heath, near Dudley, near Middlesbrough, and Droylsden, Lancashire. In all these places it occurred abundantly, with the exception of the last-named, where a single dead specimen only was obtained. It has also been met with in several localities in Ireland, and we are greatly indebted to Mr. R. Welch, of Belfast, for kindly furnishing us with particulars. The first examples obtained in Ireland were procured by Mr. Welch in 1893, and were dead specimens from those curious 'pockets' of shells among sand-dunes at Port Stewart, co. Derry. Since then many examples have been seen living near by. Dead specimens have occurred at St. Johnstone, co. Donegal, and numerous live shells at Carrigans, in the same county, both these localities being on the River Foyle. It has also been taken at Culmore, co. Derry; Kenmare, co. Kerry; Newry, co. Down; and Antrim, at the mouth of the River Sixmilewater. It has not hitherto been detected outside the British Isles. The only contribution to its anatomy was made by one of us in 1892,<sup>4</sup> when the radula was described and figured, and contrasted with that of *Paludestrina ventrosa*.

<sup>1</sup> "Notes on British *Hydrobiæ*, with description of a supposed new species": Journ. Conch., vol. vi (1889), pp. 142-5.

<sup>2</sup> "On *Hydrobiæ* and *Assimineæ* from the Thames Valley": t.c., p. 141.

<sup>3</sup> Journ. Conch., vol. vii (1893), p. 148.

<sup>4</sup> B. B. Woodward, "On the Radula of *Paludestrina Jenkinsi* (Smith), and that of *P. ventrosa* (Mont.)": Ann. & Mag. Nat. Hist., ser. vi, vol. ix (1892), pp. 376-378.

The opinion has been expressed that *P. Jenkinsi* is identical with *P. crystallina*, Pfr., but the Rev. Prof. H. M. Gwatkin informs us that the radulæ differ. He writes: "In the central tooth *P. crystallina* has a narrower form, a more decided anterior concave sweep, and more conspicuous basal teeth nearer to the posterior edge. But the central denticle is less developed than in *P. Jenkinsi*. So far the specific distinction is clear. My doubt is that I have a strong impression that one or the other is very variable."<sup>1</sup> The non-carinated examples of these species are certainly very near each other, but in the carinate specimens the carinæ in *P. Jenkinsi* are by no means so pronounced as in *P. crystallina*, and in the latter species they may rather be described as a series of spines which thus contrast with the tufts on the former. Hence we consider that *P. Jenkinsi* is a good species, and not to be ranked as one of the numerous synonyms of *P. crystallina*.

It was originally suggested by Mr. Jenkins<sup>2</sup> and Mr. W. Crouch<sup>3</sup> that the species is not truly indigenous, but has been introduced from abroad, whilst Mr. L. E. Adams has suggested that it may have been introduced with timber from Finland.<sup>4</sup> That it has hitherto been undetected abroad rather militates against the introduction theory, and no one has suggested so far that *Assiminea Grayana* (Leach), which is practically confined to the Thames estuary, is also an involuntary immigrant.

In 1897 our friend Dr. Frank Corner sent us a small box of shells which he had obtained from a section exposed in enlarging one of the 'fleets' in the Roding Valley, near Barking. The shells occurred in patches under about two to three feet of 'marsh clay,' which deposit, Dr. Corner states, is in age "within the historic period." There were about a dozen examples of *Paludestrina Jenkinsi* associated with *Bythinia tentaculata* (Linn.), *Limnæa truncatula* (Müll.), *Planorbis marginatus*, Drap., and *P. spirorbis* (Linn.). These shells still retain their periostracum, a characteristic of many of the shells from the alluvium. The obvious conclusion is that the species has lived in this country for a much longer period than has hitherto been considered to be the case. In 1859 the late Mr. G. B. Sowerby figured, but did not describe,<sup>5</sup> a shell under the name of *Rissoa castanea*, Jeffreys, examples of which had been taken by Mr. Pickering in a ditch about two miles below Gravesend. J. Gwyn Jeffreys, in alluding to these shells, states that they were considered, though with some doubt, to be a variety of *Hydrobia ventrosa* by Forbes and Hanley, but that they so greatly resembled a species of *Hydrobia* from the Cape of Good Hope that he

<sup>1</sup> Cf. L. E. Adams: The Collectors' Manual, 2nd ed., 1896, p. 145.

<sup>2</sup> "Distribution and Habits of the British *Hydrobiæ*": Science Gossip, vol. xxiv (1890), p. 106.

<sup>3</sup> "Note on *Hydrobia Jenkinsi*": Essex Nat., vol. iv (1890), p. 213.

<sup>4</sup> "A Theory as to the possible Introduction of *Hydrobia Jenkinsi*": Journ. Conch., vol. vii (1893), pp. 148-150.

<sup>5</sup> Illustrated Index of British Shells, pl. xiv, fig. 11.

could not include them in the English Molluscan fauna, and added that repeated search in the same locality had failed to find any more examples.<sup>1</sup> Since Sowerby's figure somewhat resembles *Paludestrina Jenkinsi*, there seemed a probability that the species might be represented in the Jeffreys Collection, now alas!, at Washington, so examples were forwarded to Dr. W. H. Dall, who most kindly replied that while he has failed to trace any example of the *Rissoa castanea* in that collection, there were two examples agreeing in every respect with the specimens of *Paludestrina Jenkinsi* forwarded, and labelled "*Hydrobia ferrusina*, Hampshire, Sowerby." There can be no doubt that these are the shells which Jeffreys states had been sent to him some years ago by the late G. B. Sowerby, from that county.<sup>2</sup> Additional proof is thus furnished that the shell has been both overlooked and misidentified.

#### PALUDESTRINA CONFUSA (Frauenf.).

The first accurate record of this species for England was in 1840,<sup>3</sup> when Dr. J. E. Gray noted it, under the name of *Littorina anatina*, Drap., as occurring in the marshes at Greenwich with *Assimineæ Grayana*, Leach, and pointed out the differences between it and *Bythinia ventricosa*. In 1853 it was figured as *Rissoa anatina*, Drap.?, and a description of the animal given by Forbes and Hanley,<sup>4</sup> who state that their examples were sent them by Mr. Pickering. They further remark that it was rare in the marshes near Greenwich.

J. Gwyn Jeffreys in 1862 noted that its habitat was in "muddy ditches which are occasionally overflowed by the tide of the Thames from Greenwich to below Woolwich," and he also noted that it had been found by Mr. Prestwich and Mr. Pickering in peat in the main drainage cutting between Woolwich Arsenal and Crossness.<sup>5</sup> Mr. J. T. Marshall informs us that about 1870 it occurred between Erith and Abbey Wood, and also at Tilbury. Since then extensive building and draining operations have entirely changed the aspect of things, and between 1889 and 1893, when systematic search was made for this species, it was only taken in four localities—a single dead shell at Beckton, one dead and two live shells near Abbey Wood, one live shell between Erith and Dartford Creek, and numerous examples from a small ditch about half a mile west of Erith. In 1895 we took a single live specimen from the last-named locality. The ditch has now become dry, and no living example having since been found in the district, the mollusc must, we are afraid, be now considered extinct, though there is yet a possibility it may be found in some

<sup>1</sup> British Conchology, vol. i, pp. 68, 69.

<sup>2</sup> Ibid., p. 69.

<sup>3</sup> W. Turton: "A Manual of the Land and Fresh-water Shells of the British Islands," 1840, p. 87.

<sup>4</sup> "History of British Mollusca," vol. iii (1853), p. 134, pl. lxxxvii, figs. 3, 4.

<sup>5</sup> British Conchology, vol. i, pp. 64, 65.

other part of the Thames estuary. It has been suggested that this form also is not truly a native of this country, but besides the examples from the peat near Woolwich (the peat of the Thames alluvium probably belongs to the Bronze Age, but it is certainly pre-Roman), *P. confusa* has been found in the Pleistocene beds at West Wittering,<sup>1</sup> in Sussex, and at Stone,<sup>2</sup> in Hampshire. Examples from both these localities are preserved in the Museum of Practical Geology. The specimens from the peat we have been unable to trace.

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<sup>1</sup> C. Reid: Quart. Journ. Geol. Soc., vol. xlviii (1892), p. 357.

<sup>2</sup> C. Reid: op. cit., vol. xlix (1893), p. 329.

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